# ProLine Trailers Inc.

# Trailer User's Manual

| ^ WARNING |
| --- |
| This User's Manual contains safety information and instructions for your trailer.<br><br>You must read this manual before loading or towing your trailer.<br><br>You must follow all safety precautions and instructions. |

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# 1. Safety Information

## 1.1 Safety Alert Symbols and Signal Words

Loss of control of the trailer or trailer/tow vehicle combination can result in death or serious injury. The most common causes for loss of control of the trailer are:

- Driving too fast for the conditions (maximum speed when towing a trailer is 60mph);
- Overloading the trailer or loading the trailer unevenly;
- Trailer improperly coupled to the hitch;
- Inadequate tow vehicle or towing hitch;
- No braking on trailer;
- Not maintaining proper tire pressure;
- Not keeping lug nuts tight; and
- Not properly maintaining the trailer structure.

An owner's manual that provides general trailer information cannot cover all of the specific details necessary for the proper combination of every trailer, tow vehicle and hitch. Therefore, you must read, understand and follow the instructions given by the tow vehicle and trailer hitch manufacturers, as well as the instructions in this manual.

**Trailer Components**

Our Trailers are built with components produced by various manufacturers. Some of these items have separate instruction manuals. Where this manual indicates that you should read another manual, and you do not have that manual, call ProLine Trailers Inc. at 877-956-9269 for a free copy.

The safety information in this manual is denoted by the safety alert symbol: ^

The level of risk is indicated by the following signal words.

| ^ Danger |
| --- |
| DANGER – Immediate hazards which will result in severe personal injury or death if the warning is ignored. |

| ^ WARNING |
| --- |
| WARNING – Hazards or unsafe practices which COULD result in severe personal injury or death if the warning s ignored. |

# Safety Information

| ^ Caution |
| --- |
| CAUTION – Hazards or unsafe practices which could result in minor or moderate injury if the warning is ignored. |

| ^ Notice |
| --- |
| NOTICE – Practices that could result in damage to the trailer or other property. |

## 1.2 Major Hazards

### 1.2.1 Driving Too Fast

With ideal road conditions, the maximum speed when safely towing a trailer is 60 m.p.h. If you drive too fast, the trailer tires will overheat and possible blowout. As your speed increases, you will more likely to suddenly lose control. Never exceed 60 m.p.h. while towing the trailer.

| ^ WARNING |
| --- |
| Driving to fast for conditions can result in loss of control and cause death or serious injury.<br><br>Decrease your speed as road, weather and lighting conditions deteriorate. |

### 1.2.2 Failure to Adjust Handling While Towing a Trailer

When towing a trailer, you will have decreased acceleration, increased stopping distance, and increased turning radius (which means you must make wider turns to keep from hitting curbs, vehicles, and anything else that is on the inside corner). In addition, you will need a longer distance to pass, due to slower acceleration and increased length.

- Be alert for slippery conditions. You are more likely to be affected by slippery road surfaces when driving a tow vehicle with a trailer, than driving a tow vehicle without a trailer.
- Anticipate the trailer “swaying.” Swaying is the trailer reaction to the air pressure wave caused by passing trucks and busses. Continued pulling of the trailer provides a stabilizing force to correct swaying. Do not apply the brakes to correct trailer swaying.
- Check rearview mirrors frequently to observe the trailer and traffic.
- Use lower gear when driving down steep or long grades. Use the engine and transmission as a brake. Do not ride the brakes, as they can overheat and become ineffective.
- Be aware of your trailer height, especially when approaching roofed areas and around trees.

# Safety Information

### 1.2.3 Trailer Not Properly Coupled to the Hitch

It is critical that the trailer be securely coupled to the hitch, and that the safety chains are correctly attached. Uncoupling may result in death or serious injury.

**^ WARNING**

Proper selection and condition of the coupler And hitch are essential to safely towing your Trailer. A loss of coupling may result in death Or serious injury.

- Be sure the hitch load rating is equal to or greater than the load rating of the coupler.
- Be sure the hitch size matches the coupler size
- Observe the hitch for wear, corrosion and cracks before coupling. Replace worn, corroded or cracked hitch components before coupling the trailer to the tow vehicle.
- Be sure the hitch components are tight before coupling the trailer to the tow vehicle.

.

**^ WARNING**

An improperly coupled trailer can result in Death or serious injury.

Do not move the trailer until:

- The coupler is secured and locked to hitch;
- The safety chains are secured to the tow vehicle; and
- The trailer jack(s) are fully retracted.

Do not tow the trailer on the road until:

- Tires and wheels are checked;
- The trailer brakes are checked;
- The breakaway switch is connected to the tow vehicle;
- The load is secured to the trailer; and
- The trailer lights are connected and checked.

### 1.2.4 Incorrect Use of Safety Chains

If your trailer comes loose from the hitch for any reason, we have provided safety chains so that control of the trailer can still be maintained.

| ^ WARNING |
| --- |
| Improper rigging of the safety chains can result in loss of control of the trailer and tow vehicle, leading to death or serious injury. If the trailer uncouples from the tow vehicle.<br><br>• Fasten chains to frame of tow vehicle. Do not fasten chains to any part of the hitch unless the hitch has holes or loops Specifically for that purpose.<br>• Cross chains underneath hitch and coupler with enough slack to permit turning and to hold tongue up, if the trailer comes loose. |

### 1.2.5 Incorrect Use of Breakaway Brake

Your trailer may also be equipped with a breakaway brake system that can apply the brakes on your trailer, if your trailer comes loose from the hitch for any reason. You will have a separate set of instructions for the breakaway brake if your trailer is so equipped. The safety chains and breakaway system must be in good condition and properly rigged to be effective.

| ^ WARNING |
| --- |
| An ineffective or inoperative breakaway brake system can result in a runaway trailer, leading to death or serious injury, if the coupler or hitch fails.<br><br>The breakaway cable must be connected to the tow vehicle; and NOT to any part of the hitch.<br><br>Before towing the trailer, test the function of the breakaway brake system. If the breakaway brake system is not working, do not tow the trailer; have it serviced or repaired. |

### 1.2.6 Mismatch of Trailer and Hitch

# Safety Information

| ^ Danger |
| --- |
| Use of a hitch with a load rating less than the load rating of the trailer can result in loss of control and may lead to death or serious injury.<br><br>Use of a tow vehicle with a towing capacity less than the load rating of the trailer can result in loss of control, and may lead to death or serious injury.<br><br>Be sure your hitch and tow vehicle are rated for the Gross Vehicle Weight Rating of your trailer. |

### 1.2.7 Unsafe Tires, Lug Nuts or Wheels

Trailer tires and wheels are more likely to fail than car tires and wheels because they carry a heavier load. Therefore, it is essential to inspect the trailer tires before each tow.

If a tire has a bald spot, bulge, cuts, is showing any cords, or is cracked, replace the tire before towing. If a tire has uneven tread wear, take the trailer to a dealer service center for diagnosis. Uneven tread wear can be caused by tire imbalance, axle misalignment or incorrect inflation.

Tires with too little tread will not provide adequate tracking on wet roadways and can result in loss of control, leading to death or serious injury.

Improper tire pressure causes an unstable trailer and can result in a tire blowout and loss of control. Therefore, before each tow you must also check the tire pressure. Tire pressure must be checked when tires are cold. Allow 3 hours cool-down after driving as much as 1 mile at 10 m.p.h. before checking tire pressure. NOTE: Trailer tires will be inflated to higher pressures than passenger vehicle tires.

| ^ WARNING |
| --- |
| Improper tire pressure can result in a blowout and loss of control, which can lead to death or serious injury.<br><br>Be sure tires are inflated to pressure indicated on side wall before towing trailer. |

Since trailer wheels and lug nuts (or bolts) are subjected to greater side loads than automobile wheels, they are more prone to loosen Before each tow, check to make sure they are tight.

| ^ WARNING |
| --- |
| Metal creep between the wheel rim and lug nuts will cause rim to loosen and could result in a wheel coming off, leading to death or serious injury.<br><br>Tighten lug nuts before each tow. |

The proper tightness (torque) for lug nuts is listed at page 80 in the "Inspection and Service Instructions" chapter of this manual. Use a torque wrench to tighten the lugs nuts. If you do not have a torque wrench, use a lug wrench (from your tow vehicle) and tighten the nuts as much as you can. Then have a service garage or trailer dealer tighten the lug nuts to the proper torque.

Lug nuts are also prone to loosen after first being assembled. When driving a new trailer (or after wheels have been remounted) check to make sure they are tight after the **first** 10, 25 and 50 miles of driving and before each tow thereafter.

Failure to perform this check can result in a wheel parting from the trailer and a crash, leading to death or serious injury.

| ^ WARNING |
| --- |
| Lug nuts are prone to loosen after initial installation, which can lead to death or serious injury.<br><br>Checking lugs nuts for tightness on a new trailer or when wheel(s) have been remounted after the first 10, 25 and 50 miles of driving. |

| ^ WARNING |
| --- |
| Improper lug nut torque can cause a wheel parting from the trailer, leading to death or serious injury.<br><br>Be sure lug nuts are tight before each tow. |

### 1.2.8 Overload

The total weight of the load you put in or on the trailer, plus the empty weight of the trailer itself, must not exceed the trailer's Gross Vehicle Weight Rating (GVWR). If you do not know the empty weight of the trailer, you must measure it at a commercial scale. In addition, you must distribute the load in the trailer such that the load of any tire or axle does not exceed the tire load rating or the Gross Axle Weight Rating (GAWR).

# Safety Information

| ^ WARNING |
| --- |
| An overloaded trailer can result in loss of control of the trailer, leading to death or serious injury.<br><br>Do not load a trailer so that the weight of any tire exceeds its rating.<br><br>Do not exceed the trailer Gross Vehicle Weight Rating (GVWR) or an axle Gross Axle Weight Rating (GAWR). |

### 1.2.9 Unsafe Load Distribution

Uneven load distribution can cause tire, wheel, axle or structural failure. Be sure your trailer is properly loaded.

A proper weight distribution is equal, right to left; and creates a tongue weight that is the proper range for stable trailer handling. For tandem and triple axle trailers, it is necessary to know or check that no axle is overloaded.

In the table below, the second column notes the rule of thumb percentage of total weight of the trailer plus its cargo (Gross Vehicle Weight, or "GVW") that should appear on the tongue of the trailer. For example, a trailer with a gooseneck hitch, with a loaded weight of 12,000 pounds, should have 20-25% of 12,000 pounds on the tongue. That is, the example trailer would have 2,400 to 3,000 pounds on its tongue.

| Tongue Weight as a Percentage Of Loaded Trailer Weight | |
| --- | --- |
| Type of Hitch | Percentage |
| Ball Hitch (or Bumper Hitch) | 10-15% |
| Gooseneck Hitch Fifth Wheel Hitch | 20-25% |

| ^ WARNING |
| --- |
| Improper tongue weight (load distribution) can result in loss of control of the trailer leading to death or serious injury.<br><br>Make certain that tongue weight is within the allowable range.<br><br>Be sure to:<br>• Distribute the load front-to-rear to provide proper tongue weight (see chart);<br>• Distribute the load evenly, right and left, to avoid tire overload; and<br>• Keep the center of gravity low. |

Towing stability also depends on keeping the center of gravity as low as possible. Load heavy items on the floor, over the axles, but do not exceed the axle load rating (GAWR). When loading additional items, be sure to maintain even side-to-side weight distribution and proper tongue weight.

### 1.2.10 Shifting Cargo

Since the trailer "ride" can be bumpy and rough, you must secure your cargo so that it does not shift while the trailer is being towed.

| ^ WARNING |
| --- |
| Shifting cargo can result in loss of control of the trailer, and can lead to death or serious injury.<br><br>Tie down all loads with proper sized fasteners, ropes, straps, etc. |

If the door latch is equipped with a catch that has a hole for a linchpin, use a linchpin to prevent the door latch from opening.

| ^ WARNING |
| --- |
| If the door opens, your cargo may be ejected onto the road, resulting in death or serious injury to other drivers.<br><br>Always secure the door latch after closing. place a linchpin in the catch. |

### 1.2.11 Inappropriate Cargo

Your trailer may be designed for specific cargo, for example, only for horses. If you trailer is designed for specific cargo, only carry that cargo in the trailer. A utility trailer must not be used to carry certain items, such as people, containers of hazardous substances or containers or flammable susbstances.

| ^ WARNING |
| --- |
| Do not transport people inside the trailer, even if it has living quarters. The transport of people puts their lives at risk and may be illegal. |

| ^ WARNING |
| --- |
| Do not transport flammable, explosive, poisonous or other dangerous materials in your trailer.<br><br>Exceptions:<br>• Fuel in the tanks of vehicles that are being towed<br>• Fuel stored in proper containers used in trailer living quarters for cooking<br>• Fuel stored in the tank of an on-board generator |

### 1.2.12 Inoperable Brakes, Lights or Mirror

Be sure that the electric brakes and all of the lights on your trailer are functioning properly before towing your trailer. Electric brakes and lights on a trailer are controlled via a connection to the tow vehicle, generally a multi-pin electrical connector. Check the trailer tail lights by turning on your tow vehicle headlights. Check the trailer brake lights by having someone step on the tow vehicle brake pedal while you look at trailer lights. Do the same thing to check the turn signal lights.

If your trailer has electric brake, your tow vehicle will have an electric brake controller that sends power to the trailer brakes Before towing the trailer on the road, you must operate the brake controller while trying to pull the trailer in order to confirm that the electric brakes operate. While towing the trailer at less that 5 m.p.h., manually operate the electric brake controller in the tow vehicle cab. You should fee the operation of the trailer brakes.

| ^ WARNING |
| --- |
| Improper electrical connection between the tow vehicle and the trailer will result in inoperable lights and electric brakes, and can lead to collision.<br><br>Before each tow:<br>• Check that the taillights, brake lights and turn signals work<br>• Check that the electric brakes work by operating the brake controller inside the tow vehicle |

# Safety Information

Standard mirrors usually do not provide adequate visibility for viewing traffic to the sides and rear a towed trailer. You must provide mirrors that allow you to safely observe approaching traffic.

### 1.2.13 Hazards From Modifying Your Trailer

Essential safety items can be damaged by altering your trailer. Even simply driving a nail or screw to hand something can damage an electrical circuit, LP gas line or other feature of the trailer.

Before making any alteration on your trailer, contact your dealer ProLine Trailers Inc. at 877-956-9269 and describe the alteration you are contemplating. Alteration of the trailer structure or modification of mechanical, electrical, plumbing, heating or other systems on your trailer must be preformed only by qualified technicians who are familiar with the system as installed on your trailer.

# Safety Information

### 1.2.14 Safety Warning Labels on Your Trailer

WARNING
Loading Vehicles With A Wheel Base Exceeding 96" May Cause Damage And Is Not Recommended. (See Instruction Sheet)
WARNING
CHECK WHEEL LUGS
Wheel Lug Nuts must be checked and re-torqued to 450-500 foot pounds at first 100 miles and first 500 miles of trailer use.
AB-ON
DANGER
Stand clear of trailer when operating neck!!


Haldex
With vehicle stationary and ignition turned on, light should illuminate and go out. A continuous light means the ABS is inoperative. This is equivalent to a trailer that is not equipped with ABS. The risk of operating a vehicle without ABS lies solely with the operator.
ABS
ATTENTION WELDERS!
This trailer is equipped with an electronic control unit for the ABS.
BEFORE WELDING disconnect all power sources to the trailer.

| ^ WARNING |
| --- |
| To protect you and others against death or serious injury, all of the labels shown above must be on the trailer and must be legible.<br><br>If any of these labels are missing or cannot be read, call ProLine Trailers Inc. at 877-856-9269 for free replacement labels.<br><br>You will need to provide us with the number shown at the bottom of the label(s) in order for us to send the correct one(s). |

# Safety Information

### 1.2.15 Trailer Towing Guide

Driving a vehicle with a trailer in tow is vastly different from driving the same vehicle without a trailer in tow. Acceleration, maneuverability and braking are all diminished with a trailer in tow. It takes longer to get up to speed, you need more room to turn and pass, and more distance to stop when towing a trailer. You will need to spend time adjusting to the different feel and maneuverability of the tow vehicle with a loaded trailer. Because of the significant differences in all aspects of maneuverability when towing a trailer, the hazards and risks of injury are also much greater than when driving without a trailer. You are responsible for keeping your vehicle and trailer in control, and for all damage that is caused if you lose control of your vehicle and trailer.

As you did when learning to drive an automobile, find an open area with little or no traffic for your first practice trailering. Of course, before you start towing the trailer, you must follow all of the instructions for inspection, testing, loading and coupling. Also, before you start towing, adjust the mirrors so you can see the trailer as well as the area to the rear of it.

Drive slowly at first, 5 m.p.h. or so, and turn the wheel to get the feel of how the tow vehicle and trailer combination responds. Next, make some right and left hand turns. Watch in your side mirrors to see how the trailer follows the tow vehicle. Turning with a trailer attached requires more room.

Stop the rig a few times fro speeds no greater than 10 m.p.h. If your trailer is equipped with brakes, try using different combinations of trailer/electric brakes and tow vehicle brake. Note the effect that the trailer brakes have when they are the only brakes used. When properly adjusted, the trailer brakes will come just before the tow vehicle brakes.

It will take practice to learn how to back up a tow vehicle with a trailer attached. Take it slow. Before backing up, get out of the tow vehicle and look behind the trailer to make sure that there are no obstacles. Some drivers place their hands at the bottom of the steering wheel, and while the tow vehicle is in reverse, “think” of the hands as being on the top of the wheel. When the hands move to the right (counter-clockwise, as you would do to turn the tow vehicle to the left when moving forward), the rear of the trailer moves to the right. Conversely, rotating the steering wheel clockwise with your hands at the bottom of the wheel will move the rear of the trailer to the left, while backing up. If you are towing a bumper hitch rig, be careful not to allow the trailer to turn too much, because it will hit the rear of the tow vehicle. To straighten the rig, either pull forward, or turn the steering wheel in the opposite direction.

Safe Trailer Towing Guidelines

- Recheck the load tiedowns to make sure the load will not shift during towing.
- Before towing, check coupling, safety chain, safety brake, tires, wheels and lights.
- Check the lug nuts or bolts for tightness.
- Check coupler tightness after towing 50 miles.
- Adjust the brake controller to engage the trailer brakes before the tow vehicle brakes. Your dealer can assist you by making this adjustment.
- Use your mirrors to verify that you have room to change lanes or pull into traffic.
- Use your turn signals well in advance.
- Allow plenty of stopping space for your trailer and tow vehicle.
- Do not drive so fast that the trailer begins to sway due to speed. Never drive faster than 60 m.p.h.
- Allow plenty of room for passing. A rule of thumb is that the passing distance with a trailer is 4 times the passing distance without a trailer.

# Safety Information

- Shift your automatic transmission into a lower gear for city driving
- Use lower gears for climbing and descending grades.
- Do not ride the brakes while descending grades, they may get so hot that they stop working. Then you will potentially have a runaway tow vehicle and trailer.
- To conserve fuel, don't use full throttle to climb a hill. Instead, build speed on the approach.
- Slow down for bumps in the road. Take your food off the brake when crossing the bump.
- Do not brake while in a curve unless absolutely necessary. Instead, slow down before you Enter the curve and power through the curve. This way, the towing vehicle remains "n charge."
- Do not apply the brakes to correct extreme trailer swaying. Continued pulling of the trailer, and even slight acceleration, will provide a stabilizing force.

- Make regular stops, about once each hour. Confirm that
  - the coupler is secure to the hitch and is locked,
  - electrical connectors are made,
  - there is appropriate slack in the safety chains,
  - there is appropriate slack in the breakaway switch pullpin cable,
  - the tires are not visibly low on pressure, and
  - the cargo is secure and in good condition.

# 2. Coupling to the Tow Vehicle

Follow all of the safety precautions and instructions in this manual to ensure safety of persons, cargo, and satisfactory life of the trailer.

## 2.1. Use an Adequate Tow Vehicle and Hitch

If the vehicle or hitch is not properly selected and matched to the Gross Vehicle Weight Rating (GVWR) of your trailer, you can cause an accident that could lead to death or serious injury. If you already have a tow vehicle, know your vehicle tow rating and make certain the trailer's rated capacity is less than or equal to the tow vehicle's rated towing capacity. If you already have (or plan to buy) a trailer, make certain that the tow rating of the tow vehicle is equal to or greater than that of the trailer.

| ^ Danger |
| --- |
| Use of a hitch with a load rating less than the load rating of the trailer can result in loss of control and may lead to death or serious injury.<br><br>Use of a tow vehicle with a towing capacity less than the load rating of the trailer can result in loss of control, and may lead to death or serious injury.<br><br>Be sure your hitch and tow vehicle are rated for the Gross Vehicle Weight Rating of you trailer. |

### 2.1.1. Trailer Information

The "Trailer VIN Tag" location figure shows the location of the Vehicle Identification Number (VIN) tag on your trailer.

# Coupling the Tow Vehicle

MANUFACTURED BY: ProLine Trailers Inc
Wendell, NC
DATE: December, 2014
GVWR 3178 KG( 7000 LB)
GAWR ALL 1589 KG( 3500 LB ) PER AXLE WITH ST205/75D TIRE 15 RIM
AT 345 KPA( 50 PSI) COLD SINGLE
THIS VEHICLE CONFORMS TO ALL APPLICABLE US FEDERAL MOTOR VEHICLE SAFETY STANDARDS IN EFFECT ON
THE DATE OF MANUFACTURE SHOWN ABOVE.
VIN: 5SPCH192XFW300367 TYPE: TRAILER MODEL: PCH
FD-304 REV A

The trailer VIN tag contains the following critical safety information for the use of your trailer.

**GAWR**: The maximum gross weight that an axle can support. It is the lowest of axle, wheel, or tire rating. Usually, the tire or wheel rating is lower than the axle rating, and determines GAWR.

**GVWR**: The maximum allowable gross weight of the trailer and its contents. The gross weight of the trailer includes the weight of the trailer and all of the items within it (such as cargo, water, food and other supplies). GWVR is sometimes referred to as GTWR (Gross Trailer Weight Rating), or MGTW (Maximum Gross Trailer Weight). GWVR, GTWR and MGTW are all the same rating.

The sum total of the GAWR for all trailer axles may be less than the GVWR for the trailer, because some of the trailer load is to be carried by the tow vehicle, rather than by the trailer axle(s). The total weight of the cargo and trailer must not exceed the GVWR, and the load on an axle must not exceed its GAWR.

**PSIC**: The tire pressure (Pounds per Square Inch) measured when Cold.

**VIN**: The Vehicle Identification Number.

**EMPTY WEIGHT**: Some information that comes with the trailer (such as the Manufacturer's Statement of Origin) is not a reliable source for "empty" or "net" weight. The shipping documents list average or standard weights and your trailer may be equipped with options. To determine the "empty" or "net" weight of your trailer, weigh it on an axle scale. To find the weight of the trailer using an axle scale, you must know the axle weights of your tow vehicle **without** the trailer coupled. Some of the trailer weight will be transferred from the trailer to the tow vehicle axles, and an axle scale weighs all axles, including the tow vehicle axles.

### 2.1.2. Tow Vehicle

When equipping a new vehicle or an older vehicle to tow your trailer, ask the vehicle dealer for advice on how to outfit the towing vehicle. Discuss the following information and equipment with the vehicle dealer.

Overall Carrying and Towing Capacity of Vehicle
Vehicle manufacturers will provide you with the maximum capacities of their various models. No amount of reinforcement will give a 100 horsepower, 2,500 pound truck the towing capacity that at 300 horsepower 5,000 pound truck has.

# Coupling to the Tow Vehicle

Towing Hitch
The towing hitch attached to your tow vehicle must have a capacity equal to or greater than the load rating of the trailer you intend to tow. The hitch capacity must also be matched to the tow vehicle capacity. Only your vehicle dealer can provide and install the proper hitch on your tow vehicle.

Suspension System
Sway bars, shock absorbers, heavy duty springs, heavy duty tires and other suspension components must be able to sufficiently serve the size and weight of the trailer that is going to be towed.

Brake Controller
The brake controller is part of the tow vehicle and is essential in the operation of the electric brakes on the trailer. Your manufacturer provides electric brakes on trailers with a GVWR of 3,000 pounds or more. The brake controller is not the same as the safety breakaway brake system that may be equipped on the trailer.

Side View Mirrors
The size of the trailer that is being towed and your state law regulations determine the size of the mirrors. However, some states prohibit extended mirrors on a tow vehicle, except while a trailer is actually being towed. In this situation, detachable extended mirrors are necessary. Check with your dealer of the appropriate state agency for mirror requirements.

Heavy Duty Flasher
A Heavy Duty Flasher is an electrical component that may be required when your trailer turn signal lights are attached to the tow vehicle flasher circuit.

Electrical Connector
An Electrical Connector connects the light and brake systems on the trailer to the light and brake controls on the towing vehicle.

Heavy Duty Engine Oil Cooling System
The tow vehicle engine works harder when a trailer is being towed. Depending on the size of the trailer, you may need to install a separate engine oil cooler. Inadequate cooling may result in sudden engine failure. Ask the tow vehicle dealer if it is necessary to install a separate oil cooler for the automatic transmission.

Automatic Transmission Oil Cooler
The automatic transmission of a towing vehicle handles more power when a trailer is being towed. Inadequate cooling will shorten transmission life, and may result in sudden transmission failure. Ask the tow vehicle dealer if it is necessary to install a separate oil cooler for the automatic transmission.

Fire Extinguisher
It is sensible to have a fire extinguisher in the tow vehicle

Emergency Flares and Emergency Triangle Reflectors
It is wise to carry these warning devices even if you are not towing a trailer. It is particularly important to have these when towing a trailer because the hazard flashers of your towing vehicle will not operate for as long a period of time when the battery is running both the trailer lights and tow vehicle lights.

## 2.2. Coupling and Uncoupling the Trailer

A secure coupling (or fastening) of the trailer to the tow vehicle is essential. A loss of coupling may result in death or serious injury. Therefore, you must understand and follow all of the instructions for coupling.

The following parts are involved in making a secure coupling between the trailer and tow vehicle:

Coupler: A device on the tongue of the trailer that connects to the hitch on the tow vehicle.

Hitch: A device on the tow vehicle that supports the weight of the trailer tongue and pulls the trailer. The coupler attaches to the hitch.

Safety chains: If the coupler connection comes loose, the safety chains can keep the trailer attached to the tow vehicle. With properly rigged safety chains, it is possible to keep the tongue of the trailer from digging into the road pavement, even if the coupler-to-hitch connections comes apart.

Trailer lighting (and braking) connector: A device that connects electrical power from the tow vehicle to the trailer. Electricity is used to turn on brake lights, running lights, and turn signals are required. In addition, if your trailer has a separate braking system, the electrical connector will also supply power to the brakes from the tow vehicle.

Breakaway switch: If the coupler connection comes loose, the breakaway switch can actuate emergency electrical brakes on the trailer. The breakaway switch must be rigged to the tow vehicle with appropriate slack that will activate the switch if the coupler connection comes loose.

Jack: A device on the trailer that is used to raise and lower the coupler. The jack is sometimes called the “landing gear.”

**^ WARNING**

An improperly coupled trailer can result in death or serious injury.

Do not move the trailer until:

- The coupler is secured and locked to hitch;
- The safety chains are secured to the tow vehicle; and
- The trailer jack(s) are fully retracted.

Do not tow the trailer on the road until:

- Tires and wheels are checked;
- The trailer brakes are checked;
- The breakaway switch is connected to the tow vehicle;
- The load is secured to the trailer; and
- The trailer lights are connected and checked.

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# Coupling to the Tow Vehicle

## Various Coupler Designs…

Trailers are produced with a variety of coupler devices. One of the sections below will pertain to your trailer:

- Ball Hitch Coupler
- Pintle Hitch Coupler
- Fifth Wheel Coupler

If the coupler on your trailer does not resemble one of the couplers shown in the figures, see the separate coupler instructions. If you do not have separate coupler instructions, call ProLine Trailers Inc. at 877-956-9269 for a free copy.

### 2.2.1. Trailer with Ball-Hitch Coupler

A ball hitch coupler connects to a ball that is located on or under the rear bumper of tow vehicle. This system of coupling a trailer to a tow vehicle is sometimes referred to as “bumper pull.”

A ball hitch trailer may be fitted with a tongue jack that can raise and lower the coupler. The tongue jack is mounted to the A-frame (front, or tongue) part of the trailer. By rotating the jack handle clockwise, the jack will extend and raise the tongue of the trailer.

We have utilized a Ball Hitch coupler that is suitable for the size and weight of the trailer. The load rating of the coupler and the necessary ball size are listed on the trailer tongue. You must provide a hitch and ball for your tow vehicle, where the load rating of the hitch and ball is equal to or greater than that of your trailer. Also, the ball size must be the same as the coupler size. If the hitch ball is too small, too large, is underrated, is loose or is worn, the trailer can come loose from the tow vehicle, and may cause death or serious injury.

**THE TOW VEHICLE, HITCH AND BALL MUST HAVE A RATED TOWING CAPACITY EQUAL TO OR GREATER THAN THE TRAILER Gross Vehicle Weight Rating (GVWR).**

# Coupling to the Tow Vehicle

**IT IS ESSENTIAL THAT THE HITCH BALL BE OF THE SAME SIZE AS THE COUPLER.**

The ball size and load rating (capacity) are marked on the ball; hitch capacity is marked on the hitch.

2.2.1.1. Before coupling the trailer to the tow vehicle

Be sure the size and rating of hitch ball match the size and rating of the coupler. Hitch balls and couplers are marked with their size and rating.

| ^ WARNING |
| --- |
| Coupler-to-hitch mismatch can result in uncoupling, leading to death or serious injury.<br><br>Be sure the LOAD RATING of the hitch ball is equal or greater than the load rating of the coupler.<br><br>Be sure the SIZE of the hitch ball matches the size of the coupler. |

- Wipe the hitch ball clean and inspect it visually and by feel for flat spots, cracks and pits.

| ^ WARNING |
| --- |
| A worn, cracked or corroded hitch ball can fall while towing, and may result in death or serious injury.<br><br>Before coupling trailer, inspect the hitch ball for wear, corrosion and cracks.<br><br>Replace worn or damaged hitch ball. |

- Rock the ball to make sure it is tight to the hitch, and visually check that the hitch ball nut is solid against the lock washer and hitch frame.
- Wipe the inside and outside of the coupler clean and inspect it visually for cracks and deformations; feel the inside of the coupler for worn spots and pits.
- Be sure the coupler is tight to the tongue of the trailer. All coupler fasteners must be visibly solid against the trailer frame.

| ^ WARNING |
| --- |
| A loose hitchball nut can result in uncoupling, leading to death or serious injury.<br><br>Be sure the hitch ball is tight to the hitch before coupling the trailer. |

- Raise the bottom surface of the coupler to be above the top of the hitch ball. Use the jack if one is provided; otherwise, use wood or concrete blocks to support the trailer tongue.

# Coupling to the Tow Vehicle

2.2.1.2. Prepare the coupler and hitch

- Lubricate the hitch ball and the inside of the coupler with a thin layer of automotive bearing grease. If you trailer is equipped with a jack, raise the coupler above the ball height.

- Open the coupler locking mechanism. Ball couplers have a locking mechanism with an internal moving piece and an outside handle.

    - In the open position, the coupler is able to drop fully onto the hitch ball.
    - See the coupler instructions for details of placing the coupler in the “open” position.

- Slowly back up the tow vehicle to that the hitch ball is near or aligned under the coupler, if the trailer jack has raised coupler.

2.2.1.3. Couple the trailer to the tow vehicle

If your trailer does not have a jack, you will have to lift the coupler and place it over the ball.

- If you have a jack, lower the trailer until the couple fully engages the hitch ball. If the coupler does not line up with the hitch ball, adjust the position of the tow vehicle.
- Engage the coupler locking mechanism. In the engaged position, the locking mechanism securely holds the coupler to the hitch ball.
- Insert a pin or lock through the hole in the locking mechanism.
- Be sure the coupler is all the way on the hitch ball and the locking mechanism is engaged. A properly engaged locking mechanism will allow the coupler to raise the rear of the tow vehicle Using the trailer jack, test to see that you can raise the rear of the tow vehicle by 1 inch, after the coupler is locked to the hitch

| ^ Notice |
| --- |
| Overloading can damage the tongue jack. Do not use the tongue jack to raise the tow vehicle more than 1 inch. |

**If the coupler cannot be secured to the hitch ball, do not tow the trailer.** Call ProLine Trailers Inc. at 877-956-9269 for assistance.

- Lower the trailer so that its entire tongue weight is held by the hitch, and continue retracting the jack to its fully retraced position.

# Coupling to the Tow Vehicle

2.2.1.4. Rig the safety chains

- Visually inspect the safety chains and hooks for wear or damage. Replace worn or damaged safety chains and hooks before towing.
- Rig the safety chains so that they:

    - cross underneath the coupler;
    - loop around a frame member of the tow vehicle or to holes provided in the hitch system (but, do **not** attach them to an interchangeable part of the hitch assembly); and
    - have enough slack to permit tight turns, but not be close to the road surface, so if the trailer uncouples, the safety chains can hold the tongue up above the road

| ^ WARNING |
| --- |
| Improper rigging of the safety chains can result in loss of control of the trailer and tow vehicle, leading to death or serious injury, if the trailer uncouples from the tow vehicle.<br><br>• Fasten chains to frame of tow vehicle. Do not fasten chains to any part of the hitch unless the hitch has holes or loops specifically for that purpose.<br>• Cross chains underneath hitch and coupler with enough slack to permit turning and to hold tongue up, if the trailer comes loose. |

2.2.1.5. Attach and test electric breakaway brake system

If the coupler or hitch fails, a properly connected an working breakaway brake system will apply electric brakes on the trailer. The safety chains will keep the tow vehicle attached and as the brakes are applied at the trailer's axles, the trailer/tow vehicle combination will come to a controlled stop.

# Coupling to the Tow Vehicle

The breakaway brake system includes a battery, a switch with a pullpin, and a breakaway brake controller. Read and follow the instructions here as well as the instructions that have been prepared by the breakaway brake controller manufacturer. If you do not have these instructions, call ProLine Trailers Inc. at 877-956-9269 for a free copy.

The breakaway brake system may be fitted with a charging facility that draws power from the tow vehicle. If the electrical system on your tow vehicle does not provide power to the breakaway brake battery, you must periodically charge the battery to keep the breakaway brake system in working order.

- Connect the pullpin cable to the tow vehicle so that the pullpin will be pulled out before all of the slack in the safety chains is taken up (see Breakaway Brake System figure). Do **not** connect the pullpin cable to a safety chain or to the hitch ball assembly. This would keep the breakaway brake system from operating when it is needed.
- Remove the pullpin from the switch and test tow the trailer, at less than 5 m.p.h. You should feel the trailer resisting being towed, but the wheels will not necessarily be locked. If the brakes do not function, do not tow the trailer until brakes are repaired.
- Immediately replace the pullpin. The breakaway brake system battery discharges rapidly when the pullpin is removed

| ^ WARNING |
| --- |
| An ineffective breakaway brake system can result in a runaway trailer, leading to death or serious injury, if the coupler or ball hitch fails.<br><br>Connect the breakaway cable to the tow vehicle; and NOT to the hitch, ball or support<br><br>Before towing the trailer, test the function of the breakaway brake system. If the breakaway brake system is not working, do not tow the trailer. Have it serviced or repaired. |

# Coupling to the Tow Vehicle

Do **not** tow the trailer with the breakaway brake system ON because the brakes will overheat which can result in permanent brake failure.

| ^ WARNING |
| --- |
| Failure to replace the pullpin will prevent Brakes from working, leading to loss of control, Serious injury or death. |

If you do not use your trailer for three or more months, or during winter months:

- Store the battery indoors; and
- Charge the battery every three months.

Replace the breakaway brake battery according to the battery at intervals specified by manufacturer.

2.2.1.6. Connect the electrical cables

Connect the trailer lights to the tow vehicle's electrical system using the electrical connectors.

- Check all lights for proper operation.
    - Clearance and Running Lights (Turn on tow vehicle headlight).
    - Brake Lights (Step on tow vehicle brake pedal).
    - Turn Signals (Operate tow vehicle directional signal lever).
    - Backup Lights (Put tow vehicle gear shift into reverse)..
- Check electric brakes for proper operation

If your trailer has electric brakes, your tow vehicle will have an electric brake controller that sends power to the trailer brakes. Before towing the trailer on the road, you must operate the brake controller while trying to pull the trailer in order to confirm that the electric brakes operate. While towing the trailer at less that 5 m.p.h., manually operate the electric brake controller in the tow vehicle cab. You should feel the operation of the trailer brakes.

| ^ WARNING |
| --- |
| Improper electrical connection between the tow vehicle and the trailer will result in inoperable lights and electric brakes, and can lead to collision.<br><br>Before each tow:<br>• Check that the taillights, brake lights and turn signals work<br>• Check that the electric brakes work by operating the brake controller inside the tow vehicle. |

# Coupling to the Tow Vehicle

2.2.1.7 Uncoupling the Ball Hitch Trailer with Tongue Jack

Follow these steps to uncouple your ball hitch trailer from the tow vehicle:

- Block trailer tires to prevent the trailer from rolling, before jacking the trailer up.
- Disconnect the electrical connector.
- Disconnect the breakaway brake switch cable. Promptly replace the pullpin in the switchbox.
- Disconnect the safety chains from the tow vehicle.
- Unlock the coupler and open it.
- Before extending jack, make certain the ground surface below the jack pad will support the tongue load.
- Rotate the jack handle (or crank) clockwise. This will slowly extend the jack and transfer the weight of the trailer tongue to the jack.

### 2.2.2 Trailer with Fifth-wheel Coupler and Drop-leg Jack

A fifth wheel coupler on the trailer (see “Trailer with Fifth Wheel Coupler” and “Fifth Wheel Coupler” figures) connects to a kingpin that you must have installed in the bed of the tow vehicle. This system of coupling a trailer to a tow vehicle has a greater tongue weight capacity than a ball hitch or gooseneck coupling.

A fifth wheel coupler includes a flat load-bearing plate with a slot, and a mechanism inside the slot that “grips” the kingpin.

We Have utilized a fifth wheel coupler that is suitable for the size and weight of the trailer. You must provide a kingpin plate that match the fifth wheel, and that is rated for the Gross Vehicle Weight Rating (GVWR) of your trailer.

# Coupling to the Tow Vehicle

2.2.2.1. Before attempting to tow the trailer

- Be sure the size and rating of the fifth wheel and kingpin match.
- Wipe the kingpin clean and inspect it visually and by feel for flat spots, cracks and pits. Check the condition of the kingpin mounting in the bed of the tow vehicle.

| ^ WARNING |
| --- |
| A worn, bent, cracked or corroded kingpin can fail while towing, and may result in death or serious injury.<br><br>Before coupling the trailer, inspect the kingpin and kingpin plate for wear, bending, cracks or corrosion; and replace worn or damaged kingpin. |

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- Be sure the fifth wheel mechanism operated freely.
- Lubricate the fifth wheel plate surface with a light coat of Lithium-bas, waterproof grease.
- Be sure the fifth wheel and kingpin fasteners are tight and any welds are solid.

| ^ WARNING |
| --- |
| A loose fifth wheel or kingpin can result in uncoupling, leading to death or serious injury.<br><br>Be sure the fifth wheel and kingpin are tight before coupling the trailer. |

- Be sure the brake line, electrical line, and any other lines are clear of the coupling area.
- Be sure the locks are open (see “Fifth Wheel Coupler Operation” figure).
- If the tow vehicle is equipped with a tailgate, lower it.
- Block the trailer wheels, front and rear.
- Make certain that trailer fifth wheel plate is slightly above the kingpin plate on the tow vehicle.
- Back tow vehicle up close to the trailer, centering the kingpin in the slot of the fifth wheel.
- **STOP** before engaging the coupling

| ^ WARNING |
| --- |
| If the trailer drops during coupling, death or serious injury may result.<br><br>There must be no one under the trailer or Coupler before or during the coupling operation. |

- Adjust the height of the trailer, using the jack, so that the fifth wheel plate just touches the kingpin plate.
- Slowly back up the tow vehicle, keeping the kingpin centered in the slot of the fifth wheel. Continue backing up until the fifth wheel locks firmly on the kingpoin.
- Visually check to confirm that the fifth wheel locks are properly locked onto the kingpin by performing the three checks illustrated in the “Fifth Wheel Coupler Operation” figure.
- Attempt to pull forward as a initial test of the closing of the fifth wheel locks.

# Coupling to the Tow Vehicle

| ^ WARNING |
| --- |
| An improperly coupled fifth wheel can come Loose, resulting in death or serious injury.<br><br>Do not tow the trailer until all of the visual Checks have been performed.<br><br>• Adjustment nut against fifth wheel.<br>• Secondary lock behind yoke.<br>• Fifth wheel against kingpin plate. |

Raise the Drop Leg Jack

# Coupling to the Tow Vehicle

A trailer having a fifth wheel coupler will be outfitted with one or two drop leg jacks for raising and lowering the fifth wheel coupler. Because we use several drop leg jack mechanisms, the general instructions below may vary slightly from the jack manufacturer's instructions. If the trailer jack on your trailer does not resemble the jack shown in the figures, follow the jack instructions provided by the jack manufacturer. If you do not have these instructions, call ProLine Trailers Inc at 877-956-9269 for a free copy.

- Rotate the jack handle counter-clockwise. This will slowly retract the jack and transfer the weight of the trailer tongue to the towing vehicle. When the drop leg base is no longer resting on the ground, the towing vehicle hitch is holding all of the weight of the trailer tongue. Continue retracting the jack to its fully retracted position.
- Return the drop legs to their upper positions. The drop lets are held in the lowered position with a plunger pin. Rotating the plunger pin while pulling it outward about ¾ inch will cause it to come out of the engagement with the drop leg and the leg will rapidly raise (see the "Releasing Drop Leg Mechanism" figure).
- Raise the Tailgate
- Pick up the trailer wheel blocks.

| ^ Caution |
| --- |
| The drop legs are heavily spring loaded in the lowered position. They will rapidly return to the upper position when released and can inflict serious bruises, scrapes or pinching.<br><br>Keep your feet, skins and hands well clear of the drop legs and drop leg bases when releasing the drop legs.<br><br>Always wear shoes or boots while performing this operation. |

# Coupling to the Tow Vehicle

2.2.2.2. Attach and test the breakaway brake system

If the coupler fails, a properly connected and working breakaway brake system will apply electric brakes on the trailer.

The breakaway brake system includes a battery, a switch with a pullpin, and a breakaway brake controller. Read and follow the instructions here as well as the instructions that have been prepared by the breakaway brake controller manufacturer. If you do not have these instructions, call ProLine Trailers Inc. at 877-869-9269 for a free copy.

The breakaway brake system may be fitted with a charging facility that draws power from the tow vehicle. If the electrical system on your tow vehicle does not provide power to the breakaway brake battery, you must periodically charge the battery to keep the breakaway brake system in working order.

- Visually inspect the breakaway brake system for broken parts.
- Connect the pullpin cable to the tow vehicle (see “Breakaway Brake System” figure). Do **not** connect to kingpin or its support.
- Remove the pullpin from the switch and test tow the trailer at less than 5 m.p.h. You should feel the trailer resisting being towed, but the wheels will not necessarily be locked.
- Immediately replace the pullpin. The breakaway brake system battery discharges rapidly when the pullpin is removed,

# Coupling to the Tow Vehicle

| ^ WARNING |
| --- |
| An ineffective breakaway brake system can result in a runaway trailer leading to death or serious injury, if the coupler fails.<br><br>Connect the breakaway cable to the tow vehicle, and NOT to the kingpin or its support.<br><br>Before towing the trailer, test the function of the breakaway brake system. If the breakaway brake system is not working, do not tow the trailer; have it serviced or repaired. |

Do **not** tow the trailer with the breakaway brake system ON because the brake will overheat which can result in permanent brake failure.

| ^ WARNING |
| --- |
| Failure to replace the pullpin will prevent brakes from working, leading to loss of control serious injury or death. |

If you do not use your trailer for three or more months, or during the winter months:

- Store the battery indoors; and
- Charge the battery every three months.

Replace the breakaway brake battery at intervals recommended by the battery manufacturer.

2.2.2.3. Connect the electrical cables

- Connect the trailer lights to the tow vehicle's electrical system using the electrical connectors. Check all lights for proper operation.

  - Clearance and Running Lights (Turn on tow vehicle headlights).
  - Brake Lights (Step on Tow vehicle brake pedal).
  - Turn Signals (Operate tow vehicle directional signal lever).
  - Backup Light (Put tow vehicle gear shift into reverse).

- Check brakes for proper operation: While towing the trailer at less than 5 m.p.h., manually operate the electric brake controller in the tow vehicle cab. You should fee the operation of the trailer brakes.

# Coupling to the Tow Vehicle

| ^ WARNING |
| --- |
| Improper electrical connection between the tow vehicle and the trailer will result in inoperable lights and electric brakes, and can lead to collision.<br><br>Before each tow:<br>• Check that the taillights, brake lights and turn signals work.<br>• Check that the electric brakes work by operating the brake controller inside the tow vehicle. |

2.2.2.4 Uncoupling the Fifth-Wheel Trailer with Drop-leg Jack

Follow these steps to uncouple your fifth wheel hitch trailer from your tow vehicle

- Block trailer tires to prevent the trailer from rolling before jacking the trailer up.
- Disconnect the electrical connector.
- Disconnect the breakaway brake switch cable. Promptly replace the pin in the switch.
- If the tow vehicle has a tailgate, lower it.
- Make certain that ground surface below jack base will support trailer tongue load.
- Rotate the drop leg plunger pin handle so that the plunger pin is released from the drop leg (see “Releasing Drop Leg Mechanism” figure.
- Push down on the drop leg base with your foot to place a drop leg to the desired lowered position.

| ^ Caution |
| --- |
| The drop legs are heavily spring loaded in the lowered position. They will rapidly return to the upper position when released and can inflict serious bruises, scrapes or pinching.<br><br>Keep your feet, shins and hands well clear of the drop legs and drop leg bases when releasing the drop legs.<br><br>Always wear shoes or boots while performing this operation. |

- Rotate the plunger pin handle so that the plunger pin is attempting to engage the drop leg (see “Releasing Drop Leg Mechanism” figure).
- Slowly raise your foot, permitting the drop leg to raise. The plunger pin will engage a hole in the drop leg.
- Be sure the plunger pin is fully engaged. Push it in by hand if necessary. The bent part of the plunger pin handle must be touching the plunger pin housing.
- If your trailer has two drop leg jacks, lower them both to the same level, following the above instructions.

## Coupling to the Tow Vehicle

| ^ Notice |
| --- |
| If the drop legs are not set at the same level, one of the drop leg jacks can be overloaded and can be damaged. |

- Release the handle (or crank) from its holder and engage it with the jack shaft.
- Rotate the handle (or crank) clockwise to slowly extend the jack and transfer the weight of the trailer tongue to the jack.
- On two speed jacks, pushing the handle shaft toward the gearbox can perform rapid extension. This shifts the gearbox into a high speed mode
- When the drop leg base contacts the ground, shift the gearbox into low speed mode by pulling out on the handle shaft until it locks into low gear.

| ^ Notice |
| --- |
| Do not use high speed to lift the trailer, the drop leg jack mechanism can be damaged.<br><br>High speed is used only to rapidly move the drop leg base into contact with the ground. |

- Continue to extend the jack(s), making sure that the ground is providing stable and level support for the trailer.
- Turn the crank two or three turns to take some of the weight of the coupling. Do **not** raise the fifth wheel off the kingpin plate.
- After the jack(s) are extended enough to permit driving the tow vehicle away, disengage the jack handle from its shaft and return it to its holder. Do NOT drive the tow vehicle yet!

# Coupling to the Tow Vehicle

- Open the fifth wheel locks by:
    - pulling the release handle, or
    - using a separate pipe release handle to engage the solid stud on the secondary lock (see “Fifth Wheel Coupler Operation” and “Opening Fifth Wheel Locks” figures).
- Slowly drive the tow vehicle away from the trailer
- Raise the tow vehicle tailgate.

# 3. Loading the Trailer

Improper trailer loading causes many accidents and deaths. To safely load a trailer, you must consider:

- Overall load weight;
- Load weight distribution;
- Proper tongue weight; and
- Securing the load properly.

To determine that you have loaded the trailer within its rating, you must consider the *distribution* of weight, as well as the total weight of the trailer and its contents. The trailer axles carry most of the total weight of the trailer and its contents (Gross Vehicle Weight, or "GVW"). The remainder of the total weight is carried by the tow vehicle hitch. It is essential for safe towing that the trailer tongue and tow vehicle hitch carry the proper amount of the loaded trailer weight, otherwise the trailer can suddenly sway wildly at towing speed. Read the "Tongue Weight" section below.

The load distribution must be such that no component part of the trailer is loaded beyond its rating. This means that you must consider the rating of the tires, wheels and axles. For tandem and triple axle trailers, you must make sure that the front-to-rear load distribution does not result in overloading any axle.

Towing stability also depends on keeping the center of gravity as low as possible. Load heavy items on the floor and over the axles. When loading additional items, be sure to maintain even side-to-side weight distribution and proper tongue weight. The total weight of the trailer and its contents must never exceed the total weight rating of the trailer (Gross Vehicle Weight Rating, or "GVWR").

| ^ WARNING |
| --- |
| An overloaded trailer can result in loss of control of the trailer, leading to death or serious injury.<br><br>Do not load a trailer so that the weight on any tire exceeds its rating.<br><br>Do not exceed the trailer Gross Vehicle Weight rating (GVWR) or an axle Gross Axle Weight rating (GAWR). |

**Tongue Weight**

It is critical to have a portion of the trailer load carried by the tow vehicle. That is, the trailer tongue must exert a downward force on the hitch. This is necessary for two reasons. First, the proper amount of tongue weight is necessary for the tow vehicle to be able to maintain control of the tow vehicle/trailer system. If, for example, the tongue exerts an upward pull on the hitch, instead of pushing down on it (because the trailer is overloaded behind its axle(s)), the rear wheel of the tow vehicle can lose traction or grip and cause loss of control. Also, even if there is some weight on the tongue, but not enough weight on the tongue, the trailer can suddenly become unstable at high speeds.

If, on the other hand, there is too much tongue weight, the front wheels of the tow vehicle can be too lightly loaded and cause loss of steering control and traction, as well, if the front wheels are driving.

# Loading the Trailer

In addition to tow vehicle control, tongue weight is necessary to insure that the trailer axle(s) do not exceed their Gross Axle Weight Rating (GAWR).

The table below has “rules of thumb” for proper tongue weight.

In the table below, the second column notes the rule of thumb percentage of total weight of the trailer plus its cargo (Gross Vehicle Weight, or “GVW”) that should appear on the tongue of the trailer. For example, a trailer with a gooseneck hitch, with a loaded weight of 12,000 pounds, should have 20-25% of 12,000 pounds on the tongue. That is, the example trailer would have 2,400 to 3,000 pounds on its tongue.

| Tongue Weight as a Percentage of Loaded Trailer Weight | |
|---|---|
| Type of Hitch | Percentage |
| Ball Hitch (or Bumper Hitch) | 10-15% |
| Gooseneck Hitch<br>Fifth Wheel Hitch | 20-25% |

**^ WARNING**

Improper tongue weight (load distribution) can result in loss of control of the trailer, leading to death or serious injury.

Make certain that tongue weight is within the allowable range.

Be sure to:

- Distribute the load front-to-rear to provide proper tongue weight (see chart);
- Distribute the load evenly, right to left, to avoid tire overload; and
- Keep the center of gravity low.

## 3.1. Checking Tongue Weight

To check the tongue weight, the tow vehicle and trailer must be on level ground, as they will be when the trailer is being towed.

If you know the weight on your tow vehicle axles when you are not towing a trailer, trailer tongue weight can be determined with the use of a truck axle scale.

# Loading the Trailer

## 3.2. Securing the Cargo

Since the trailer “ride” can be bumpy and rough, you must secure your cargo so that it does not shift while the trailer is being towed.

| ^ WARNING |
| --- |
| Shifting cargo can result in loss of control of the trailer, and can lead to death or serious injury.<br><br>Tie down all loads with proper sized fasteners, ropes, straps, etc. |

### 3.2.1. Loading Cargo (Open Trailer)

Couple the trailer to the tow vehicle before loading. This is essential for the bumper pull trailer because the tongue of a bumper pull trailer can rise during loading, before the cargo is properly distributed. To measure the tongue weight, you will have to uncouple the trailer after it is loaded.

Do not transport people, containers of hazardous substances, cans or containers of flammable substances, such as gasoline, kerosene, paint, etc. However, fuel in the tank of an off-road vehicle, or a car or motorcycle, etc. may be carried on your open trailer.

| ^ WARNING |
| --- |
| Do not transport flammable, explosive, poisonous or other dangerous materials in your trailer.<br><br>Exceptions:<br>• Fuel in the tanks of vehicles that are being towed<br>• Fuel stored in proper containers used in trailer living quarters for cooking<br>• Fuel stored in the tank of an on-board generator |

# Loading the Trailer

3.2.1.1. Preparing the Trailer for Loading

Before loading cargo onto the trailer:

- inspect the deck of the trailer for corrosion or damage; and
- inspect the hold down openings and/or “D”-rings. Hold down openings must be sturdy with no visible cracks or kinks. D-rings must be tight to the deck and must not be bent.

If the deck or any required hold-down is damages, do not load the cargo. Bring the trailer to your dealer or competent repair service before using it to carry cargo.

| ^ WARNING |
| --- |
| Damages or loose “D”-rings can break, allowing cargo to become loose inside the trailer. Loose cargo can shift the center of gravity, and result in loss of control of the trailer.<br><br>Inspect “D”-rings, and test them for looseness before loading cargo.<br><br>Do no use a damaged or loose “D”-ring to secure cargo. |

3.2.1.2 Loading a Rigid-deck Trailer

Open trailers have either a rigid-deck or a pivoting deck, depending on the exact model. This subsection describes loading a rigid-deck trailer.

Before loading a rigid-deck trailer, couple the trailer to the tow vehicle and make sure the rigid-deck is level. Do no load or unload the trailer when the deck is not level.

1. Make sure the top of the ramp (or ramps) is secure to the trailer, and the bottom is resting on firm ground. Pockets may be provided to hold the ramp to the frame of the trailer.

| ^ WARNING |
| --- |
| Load can suddenly move or topple, which can result in death or serious injury.<br><br>Do not load or unload your open trailer unless it is prevented from tipping and is on firm and level ground. |

# Loading the Trailer

2. Load the cargo onto the trailer.
3. Secure the cargo to the trailer using appropriate straps, chains and tensioning devices. Since the trailer “ride” can be bumpy and rough, you must secure your cargo so that it does not shift while the trailer is being towed.

| ^ WARNING |
| --- |
| Shifting cargo can result in loss of control of the trailer, and can lead to death or serious injury.<br><br>Tie down all loads with proper sized fasteners, ropes, straps, etc. |

4. Return the ramp(s) to their stowed position(s), and secure them so that they will not move during transit

# 4. Checking the Trailer Before and During Each Tow

## 4.1. Pre-Tow Checklist

Before towing, double-check all of these items:

- □ Tires, wheels and lug nuts (see the “Major Hazards” section starting on page 2 of this manual)
- □ Coupler secured and locked (see the “Coupling and Uncoupling the Trailer” section starting on page 20 of this manual)
- □ Safety chains properly rigged to tow vehicle, not to hitch or ball (see the “Coupling to the Tow vehicle” chapter starting at Page 17 of this manual)
- □ Test of lights: Tail, Stop, Turn and Backup
- □ Safety breakaway switch cable fastened to tow vehicle, not to safety chains (see the “Coupling to the Tow Vehicle” chapter starting at Page 17 of this manual)
- □ Cargo properly loaded, balanced and tied down (see the “Loading the Trailer” chapter starting at page 36 of this manual)
- □ Tongue Weight
- □ Doors and gates latched and secured
- □ Fire extinguisher
- □ Flares and reflectors

## 4.2. Make Regular Stops

After each 50 miles, or one hour of towing, stop and check the following items:

- □ Coupler secured
- □ Safety chains are fastened and not dragging
- □ Cargo secured
- □ Cargo door latched and secured

# 5. Breaking-In the New Trailer

## 5.1. Retighten Lug Nuts at First 10, 25 & 50 Miles

Wheel lugs can shift and settle quickly after being first assembled, and must be checked after the **first** 10, 25 and 50 miles of driving. Failure to perform this check may result in a wheel coming loose from the trailer, causing a crash leading to death or serious injury.

| ^ WARNING |
| --- |
| Lug nuts are prone to loosen after initial installation, which can lead to death or serious injury.<br><br>Check lug nuts for tightness on a new trailer or when wheel(s) have been remounted after the first 10, 25 and 50 miles of driving. |

## 5.2. Adjust Brake Shoes at First 200 Miles

Brake shoes and drums experience a rapid initial wear. The brakes must be adjusted after the first 200 miles of use, and each 3,000 miles thereafter. Some axles are fitted with a mechanism that will automatically adjust the brake shoes when the trailer is “hard braked” from a forward direction. Read your axle and brake manual to see if your brakes adjust automatically. If you do not have the axle and brake manual, call ProLine Trailers Inc at 877-956-9269 for a free copy.

A hard stop is used to:

- Confirm that the brakes work;
- Confirm that the trailer brakes are properly synchronized with the tow vehicle brakes; and for many braking systems,
- Automatically adjust the brake shoes.

If your trailer is not fitted with automatically adjusting brakes, the brakes will need to be manually adjusted. See section 6.2.3.2. “Manually Adjusting Brake Shoes,” for instructions.

## 5.3. Synchronizing the Brake Systems

Trailer brakes are designed to work in synchronization with the brakes on the tow vehicle. Do not use either brake system alone to stop the combined tow vehicle and trailer.

When the tow vehicle and trailer braking systems are synchronized, both braking systems contribute to slowing, and the tongue of the trailer will neither dive nor rise sharply.

# Breaking-In a New Trailer

| ^WARNING |
| --- |
| If trailer and tow vehicle brakes do not work properly together, death or serious injury can occur.<br><br>Road test the brakes in a safe area at no more than 30 m.p.h. before each tow. |

To insure safe brake performance and synchronization, read and follow the axle/brake and the brake controller manufacturers' instructions. If you do not have these instructions, call ProLine Trailers Inc at 877-956-9269 for a free copy.

# 6. Inspection Service & Maintenance

## 6.1. Inspection, Service & Maintenance Summary Charts

You must inspect, maintain and service your trailer regularly to insure safe and reliable operation. If you cannot or are unsure how to perform the items listed here, have your dealer do them. Note: In addition to this manual, also check the relevant component manufacturers manual.

| **Inspection and Service before Each Use** | | |
|---|---|---|
| **Item** | **Inspection / Service** | **Manual Section Reference** |
| Breakaway Brakes<br>> Electric<br>> Hydraulic | <br>Check Operation<br>Check fluid level | <br>Sections 2.2.1.5 & 2.2.2.2<br>Sections 7.2.5.4 |
| Breakaway Battery | Fully charged, connections Clean | Sections 2.2.1.5 & 2.2.2.2<br>Section 6.2.3.3.A.(i) |
| Brakes, all types | Check operation | Section 5.3 |
| Shoes and Drums | Adjust | Sections 5.2 & 6.2.3.2 |
| Coupler and Hitch Ball | Check locking device & replace | Section 6.2.4.1 |
| Fifth Wheel & Kingpin | Check for cracks,<br>Grease,<br>Check locking device & replace when worn | Section 2.2.2.1<br>Section 2.2.2.1<br>Sections 2.2.2.1 & 6.2.4.3 |
| Safety Chain(s) & Hooks | Check for wear and damage | Section 2.2.1.4 |
| Tires | Check for tire pressure when cold. Inflate as needed | Sections 4.1 & 6.2.7 |
| Wheels – Lug Nuts (Bolts) & Hub | Check for tightness<br>Tighten. For new and remounted wheels, check torque after first 10, 25 & to miles of driving and after any impact | Section 4.1<br>Sections 5.1 & 6.2.10 |

# Inspection Service & Maintenance

| Inspection and Service each 3 Months or 3,000 Miles | | |
|---|---|---|
| **Item** | **Inspection / Service** | **Manual Section Reference** |
| Structure<br>> Rubber mats and floor<br>> Hinges, Doors and dividers | Remove mats. Wash both sides<br>Inspect, Repair or replace damaged, worn or broken parts | Section 6.2.2<br><br>Section 6.2.2 |

| Inspection and Service each 6 Months or 6,000 Miles | | |
|---|---|---|
| **Item** | **Inspection / Service** | **Manual Section Reference** |
| Tires | Rotate @ 5,000 miles | Section 6.2.7 |
| Brakes, electric<br>> Magnets<br>>Controller (in tow vehicle) | <br>Check wear & current draw<br>Check power output (amperage) & modulation | <br>Section 6.2.3.3.C<br>Section 6.2.3.3.B<br>See Controller Mfr's Manual |
| Structure<br>> Roof Vents<br>> Windows | <br>Clean dirt buildup, lubricate Hinges and slides | <br>Section 6.2.2 |
| Tires | Inspect tread and sidewalls thoroughly.<br>Replace tire when treads are worn, when sidewall has a bulge, or sidewall is worn | Section 6.2.7<br><br>Section 6.2.7 |

| Inspection and Service Each Year for 12,000 Miles | | |
|---|---|---|
| **Items** | **Inspection / Service** | **Manual Section Reference** |
| Brakes, all types<br>> Shoes and drums | Check for scoring and wear.<br>Replace per manufacturer's specifications | Section 6.2.3.1<br><br>See Brake Mfr's Manual |
| Jack, Drop-leg | Grease gears at top | See Jack Mfr's Manual |
| Structure<br>> Frame members<br><br><br>> Welds<br><br>> Slide-out | Inspect all frame members, bolts & rivets. Repair or replace damaged, worn or broker parts.<br>Inspect all welds. Repair as needed.<br>Clean dirt build-up. Lubricate slides, shafts and gears | Section 6.2.1<br><br><br><br>Section 6.2.2.2.<br><br>Section 6.2.4 |
| Wheels<br>> Sealed Bearings (Hubs)<br><br>> Unsealed Bearings (Hubs)<br><br><br><br>> Rims | Check and confirm free running. Replace if not (sealed bearings are not serviceable).<br>Disassemble / inspect / assemble and repack.<br>Replace promptly if immersed in water.<br>Inspect for cracks & dents. Replace as needed. | Section 6.2.9<br><br><br>Section 6.2.9.1<br><br>See Axle Mfr's Manual<br><br>Section 6.2.8 |
| Structure<br>> Axle Attachment Bolts | <br>Check BY DEALER | <br>Section 6.2.1 |

# Inspection Service & Maintenance

## 6.2. Inspection and Service Instructions

### 6.2.1 Axle Bolts, Frame, Suspension & Structure

| ^WARNING |
| --- |
| Worn or broken suspension parts can cause loss of control or injury may result.<br><br>Have a trailer professionally inspected annually and after any impact. |

To perform many of the inspection and maintenance activities, you must jack up the trailer. “Jacking Points for All Trailers” figure indicates the general areas where jacks and jack stands may be applied.

When jacking and using jack stands, place them so as to clear wiring, brake lines and suspension parts (springs, torsion bars, etc.). Place jacks and jack stands inside of the perimeter strip on the supporting structure to which the axle is attached.

| ^ WARNING |
| --- |
| Never crawl under the trailer unless it is on firm and level ground and resting on properly placed and secured jack stands. |

## 6.2.2 Trailer Structure

Because the trailer floor receives the most abuse, it will most likely corrode before any other part of the structure. This is particularly true for horse and livestock trailers, having floors subjected to urine and manure. The urine and manure are corrosive to the aluminum flooring and other structural parts of the trailer.

Remove the rubber mats from the floor of the trailer, and wash them, at least every three months. Using a power washer and a detergent solution, wash both sides of the rubber mat, as well as the floor and walls of the trailer. Rinse the rubber mat and the trailer floor and walls. Be sure the rubber mat and trailer floor are completely dry before replacing the rubber mat.

### 6.2.2.1. Fasteners and Frame Members

Inspect all of the fasteners and structural frame members for bending and other damage, cracks, or failure. Repair or replace any damaged fastener and repair the frame member. If you have any questions about the condition or method of repair of fasteners or frame members, get the recommendation of, or have the repair done by, your dealer.

| ^ WARNING |
| --- |
| Broken or damaged fasteners or welds can cause injury or damage to trailer and contents.<br><br>Inspect for, and repair all damaged parts at least once a year. |

### 6.2.2.2. Welds

All welds can crack or fail when subjected to heavy loads or movement of cargo that was not properly tied to prevent movement. Any time that you know or suspect that the trailer has been subjected to heavy loads or movement of cargo, immediately inspect the welds and fasteners for damage. To prevent severe damage to your trailer, inspect all of the welds for cracks or failure at least once a year.

| ^ WARNING |
| --- |
| Improper weld repair will lead to early failure of the trailer structure and can cause serious injury or death.<br><br>Do not repair cracked or broken welds unless you have the skills and equipment to make a proper repair. If not, have the welds repaired by your dealer. |

# Inspection Service & Maintenance

## 6.2.3 Trailer Brakes

6.2.3.1. Brake Shoes and Drums

Properly functioning brake shoes and drums are essential to ensure safety. You mush have your dealer inspect these components at least once per year, or each 12,000 miles.

The brake shoes must be adjusted after the first 200 miles of use, and each 3,000 miles thereafter. Most axles are fitted with a brake mechanism that will adjust the brakes during a hard stop. Read your axle and brake manual to see how to adjust your brakes. If you do not have this manual, call ProLine Trailers Inc. at 877-956-9269 for a free copy.

3.2.1.2 Manually Adjusting Brake Shoes

Some braking systems are not automatically adjusted by hard stopping. These brakes require manual adjustment. The following steps apply to adjust most manually adjustable brakes. Read your axle and brake manual to see how to adjust your brakes. If you do not have this manual, call ProLine Trailers Inc at 877-956-9269 for a free copy.

1. Jack up the trailer and secure it on adequate capacity jack stands.
2. Be sure the wheel and brake drum rotate freely.
3. Remove the adjusting-hole cover from the adjusting slot on the bottom of the brake backing plate.
4. With a screwdriver or standard adjusting tool, rotate the starwheel of the adjuster assembly to expand the brake shoes. Adjust the brake shoes out until the pressure of the linings against the drum makes the wheel very difficult to turn. Note: Your trailer maybe equipped with drop spindle axles. See axle manual for your axle type. You will need a modified adjusting tool for adjusting the brakes in these axles With drop spindle axles, a modified adjusting tool with about an 80 degree angle should be used.
5. Rotate the starwheel in the opposite direction until the wheel turns freely with a slight drag.
6. Replace the adjusting-hole cover.
7. Repeat the above procedure on all brakes.
8. Lower the trailer to the ground.

6.2.3.2. Brakes, Electric

Two different types of electric brakes may be present on the trailer; an emergency electric breakaway system, which acts only if the trailer comes loose from the hitch and the breakaway pin is pulled. The other brakes is an electric braking system that acts whenever the brakes of the tow vehicle are applied.

6.2.3.3.A. BREAKAWAY BRAKE

6.2.3.3.A.(i) Breakaway Battery

This battery supplies the power to operate the trailer brakes if the trailer uncouples from the tow vehicle. Be sure to check, maintain and replace the battery according to the battery manufacturer' instructions.

6.2.3.3.A.(ii)

This switch causes the breakaway battery to operate the electric brakes if the trailer uncouples from the tow vehicle.

The pull cable for the pull pin is connected to the tow vehicle, and the switch is connected to the trailer. To check for proper functioning of the switch, battery and brakes, you must pull the pin from the switch and confirm that the brakes apply to each wheel. You can do this by trying to pull the trailer with the tow vehicle, after pulling the pin. The trailer brakes may not lock, but you will notice that a greater force is needed to pull the trailer.

| ^ WARNING |
| --- |
| If electric breakaway brakes do not operate when trailer is uncoupled from the tow vehicle, death or serious injury can occur.<br><br>Check emergency breakaway brake system BEFORE each tow. |

6.2.3.3.B. TOW VEHICLE OPERATED ELECTRIC BRAKES

The electric brakes that operate in conjunction with the tow vehicle brakes must be "synchronized" so that braking is properly distributed to the tow vehicle brakes and the trailer brakes. For proper operation and synchronization, read and follow the axle/brake and the brake controller manufacturers' instructions. If you do not have these instructions, call ProLine Trailers Inc at 877-956-9269 for a free copy.

6.2.3.3.C. MAGNETS FOR ALL ELECTRIC BRAKES

To make certain an electrically-operated braking system will function properly, you must have your dealer inspect the magnets at least once a year, or each 12,000 miles. See the brake manual for wear and current inspection instructions.

## 6.2.4. Trailer Connection to Tow Vehicle

The coupler on the trailer connects to the ball attached to the hitch on the tow vehicle. The coupler, ball and hitch transfer the towing forces between the tow vehicle and the trailer. Before each tow, coat the ball with a thin layer of automotive hearing grease to reduce wear and ensure proper operation; and check the locking device that secures the coupler to the ball for proper operation.

See the coupler manufacturer's manual for other inspection and maintenance activities. If you do not have this manual, call ProLine Trailers Inc at 877-956-9269 for a free copy.

If you see or feel evidence of wear, such as flat spots, deformations, pitting or corrosion, on the ball or coupler, immediately have your dealer inspect them to determine the proper action to prevent possible failure of the ball and coupler system. All bent or broken coupler parts must be replaced before towing the trailer.

When replacing a ball, the load rating must match or exceed the GVWR of the trailer.

6.2.4.2. Fifth Wheel Kingpin

Before each tow, inspect the fifth wheel and kingpin for wear, and coat the contact surface of the fifth wheel plate with water-resistant Lithium-base grease. If you see evidence of wear on the fifth wheel or kingpin, immediately have your dealer inspect them to determine the proper action to prevent failure of the fifth wheel and kingpin system.

See the manual prepared by the manufacturer of the fifth wheel and kingpin for other inspection and maintenance activities. If you do not have the manual, call ProLine Trailers Inc at 877-956-9269 for a free copy

### 6.2.5. Landing Leg or Jack

If a grease fitting is present, you must use a grease gun to lubricate the jack mechanism. Grease the gears in the top of hand-cranked jacks once a year, by removing the top of the jack and pumping or hand packing grease into the gears.

### 6.2.6. Lights and Signals

Before each tow, check the trailer taillights, stoplights, turn signals and any clearance lights for proper operation.

| ^ WARNING |
| --- |
| Improper operating taillights, stoplights and turn signals can cause collisions.<br><br>Check all lights before each tow. |

### 6.2.7. Tires

Before each tow, be sure the tire pressure is at the value indicated on the sidewall. Tire pressure must be checked while the tire is cold. Do not check the tire pressure immediately after towing the trailer. Allow at least three house for a tire to cool, if the trailer has been towed for as much as one mile. Replace the tire before towing the trailer if the tire treads have less than 1/16 inch depth or the telltale bands are visible.

A bubble, cut or bulge in a side wall can result in a tire blowout. Inspect both side walls of each tire for any bubble, cut or bulge; and replace a damaged tire before towing the trailer.

| ^ WARNING |
| --- |
| Worn, damaged or under-inflated tires can cause loss of control, resulting in damage, serious injury and possibly death.<br><br>Inspect tires before each tow. |

### 6.2.8. Wheel Rims

If the trailer has been struck, or impacted, on or near the wheels, or if the trailer has struck a curb, inspect the rims for damage (i.e. being out of round); and replace any damaged wheel. Inspect the wheels for damage every year, even if no obvious impact has occurred.

# Inspection Service & Maintenance

### 6.2.9. Wheels, Bearings and Lug Nuts

A loose, worn or damaged wheel bearing is the most common cause of brakes that grab.

To check your bearings, jack trailer and check wheels for side-to-side looseness. If the wheels are loose, or spin with a wobble, the bearings must be serviced or replaced.

Most trailer axles are built with sealed bearings that are not serviceable. Sealed bearings must be replaced on complete units.

6.2.9.1 Unsealed Bearings (Hubs)

If your trailer has unsealed axle bearings, they must be inspected and lubricated once a year of 12,000 miles to insure safe operation of your trailer.

If a trailer wheel bearing is immersed in water, it must be replaced.

If your trailers has not been used for an extended amount of time, have the bearings inspected and packed more frequently, at least every six months and prior to use.

Follow the steps below to disassemble and service the UNSEALED wheel bearings.

- After removing the grease cap, cotter pin, spindle nut and spindle washer (items 7-10 in "Exploded Wheel Bearing" figure), remove the hub and drum to inspect the bearings for wear and damage.
- Replace bearings that have flat spots on rollers, broken roller cages, rust or pitting. Always replace bearings and cup in sets. The inner and outer bearings are to be replaced at the same time.
- Replace the seals that have nicks, tears or wear.
- Lubricate the bearings with a high quality EP-2 automotive wheel bearing grease.

# Inspection Service & Maintenance

Every time the wheel hub is removed and the bearings are reassembled, follow the steps below to check the wheel bearings for free running and adjust.

- Turn the hub slowly, by hand, while tightening the spindle nut, until you can no longer turn the hub by hand.
- Loosen the spindle nut just until you are able to turn it (the spindle nut) by hand. Do not turn the hub while the spindle nut is loose.
- Put a new cotter pin through the spindle nut and axle.
- Check the adjustments. Both the hub and spindle nut should be able to move freely (the spindle nut motion will be limited by the cotter pin).

### 6.2.10. Lug Nuts (Bolts)

Lug nuts are prone to loosen right after a wheel is mounted to a hub. When driving on a remounted wheel, check to see if the lug nuts are tight after the first 10, 25 and 50 miles of driving and before each tow thereafter.

| ^ WARNING |
| --- |
| Lug nuts are prone to loosen after initial Installation, which can lead to death or serious Injury.<br><br>Check lug nuts for tightness on a new trailer or When wheel(s) have been remounted after the First 10, 25 and 50 miles of driving |

| ^ WARNING |
| --- |
| Metal creep between the wheel rim and lug Nuts will cause rim to loosen and could result in A wheel coming off, leading to death or serious Injury.<br><br>Tighten lugs nuts before each tow. |

Tighten the lugs nuts to the proper tongue for the axle size on your trailer, to prevent wheels from coming loose. Use a torque wrench to tighten the fasteners. If you do not have a torque wrench, tighten the fasteners with a lug wrench as much as you can, then have a service garage or dealer tighten the lug nuts to the proper torque. Over-tightening will result in breaking the studs or permanently deforming the mounting stud holes in the wheels.

# Inspection Service & Maintenance

| Lug Nut Torque – Steel Wheels | | |
|---|---|---|
| Axle Rating<br>Pounds | Stud Size | Torque<br>Foot-pounds |
| 3,500 to 7,000 | ½ inch | 80 to 95 |
| 8,000 | 9/16 inch | 120 to 140 |
| 9,000 | 5/8 inch | 175 to 225 |
| 10,000 | 5/8 inch flanged | 275 to 325 |
| 12,000 | ¾ inch flanged | 375 to 425 |

| Lug Nut Torque – Aluminum Wheels | | |
|---|---|---|
| Rim Size | Stud Size | Torque<br>Foot-pounds |
| 15 inch (5 or 6 hole) | ½ inch | 65 to 75 |
| 16 inch (8 hole) | ½ inch | 65 to 75 |